BID ADDENDUM 2
Clarifications and Response to Bidder Questions

Aberjona River Flood Mitigation Program
Project 8 – Swanton Street Bridge Placement
Winchester, MA

December 14, 2020

1. *Is cast in place concrete testing required? Will this be provided by the Owner? Specification Section 03-30-55, 1.5 in unclear.*

   Cast in place testing will be required and is the responsibility of the Contractor

2. *Please verify that the Owner is responsible for the costs associated with relocating the utility pole at the West side of the bridge.*

   An allowance of $25,000 is to be included for time and materials associated with the utility pole coordination and relocation. See Addendum #1

3. *Is the intent to leave the gas line in place during construction or to temporarily relocate the line?*

   The intent is for the gas line to remain in place

4. *Has the Owner worked with the Gas Utility Owner to do a survey of the existing line? If so, can you please provide the findings and recommendations for protection?*

   No survey has been performed of the gas line. The gas line was relocated as part of the previous super structure replacement and shown in the bridge plans attached to this addendum.

5. *Please verify that any utility company costs for inspections, site visits etc. associated with the gas line to be protected and to remain in place will be the responsibility of the Owner under a force account.*

   Any costs billed by the gas utility will be the responsibility of the Owner.

6. *Please confirm that the existing waterline can be shut down for an extended period during construction. If not, please confirm that the depth is below the bottom of excavation for the proposed construction.*

   The waterline will be isolated by the proposed gates on either side of the bridge. The waterline cannot be shut down for an extended period to time. Short term disruption to install the gates can be coordinated with the Town.

7. *Is there any flow rate information available for the existing drainage lines that outlet through the existing abutments?*

   There is no flow rate information for the outfalls.

8. *Is the intent for all dredged material to be used onsite? If not, can you please clarify if dredged material being disposed of needs to be brought to an un-lined or lined landfill?*

   See revised Bid Form provided in Addenda 1 with additional bid items for disposal.

9. *There is conflicting language regarding both contaminated soils and hazardous materials on the Drawings and in the Specifications. There are no unit price pay items provided for testing, handling and disposal and no information regarding presence of such materials. As this is unquantifiable, please confirm that if any contaminated or hazardous material is encountered, the Contractor is responsible for notifying the Owner, waiting for instruction and that the costs associated with testing, handling and disposal will be paid for under change order.*

   See revised Bid Form and Unit Prices provided in Addenda 1 with additional bid items for disposal which includes testing of the material.

10. *Instructions to bidders Part 1B mentions that Bid Forms shall not be removed from Contract Documents and executed. Can you please clarify? Is the intent to bind the entire bid with the 416 page document or will a separate official Bid Form be provided?*

    Please use the updated Bid Form provided in Addenda 1. The entire document does not need to be provided with the Bid.

11. *Can existing bridge drawings be provided?*

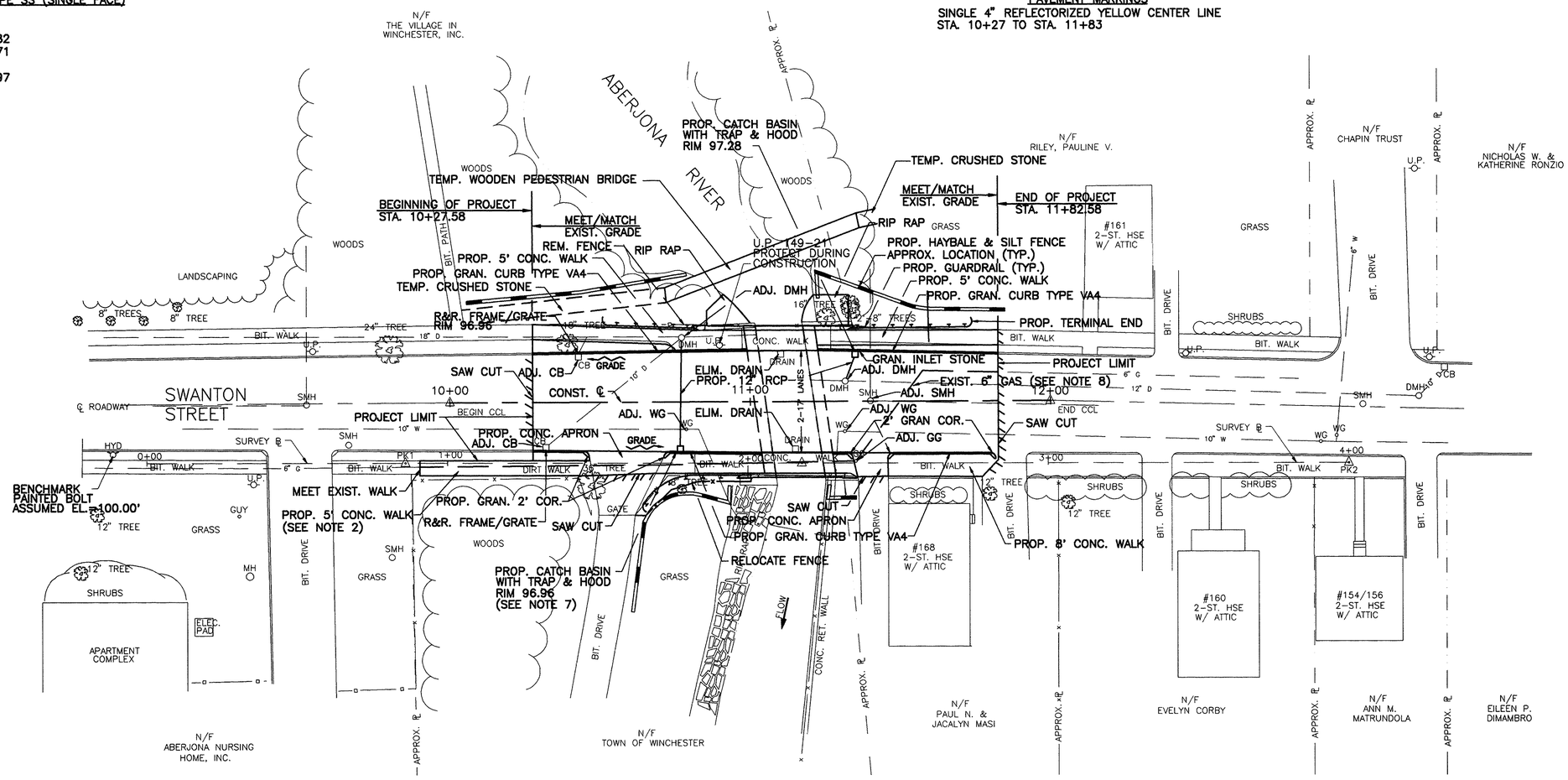
    The available bridge plans are attached to this addendum.

Attachment A
Bridge Plans

STEEL HIGHWAY GUARD RAIL – TYPE SS (SINGLE FACE)

NORTH SIDE:
STA. 10+57 TO STA. 10+82
STA. 11+33 TO STA. 11+71
SOUTH SIDE:
STA. 10+46 TO STA. 10+97

PAVEMENT MARKINGS
SINGLE 4" REFLECTORIZED YELLOW CENTER LINE
STA. 10+27 TO STA. 11+83

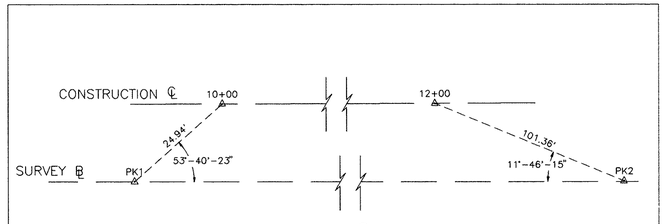


PLAN

SWANTON STREET

GRAPHIC SCALE

20 0 10 20 40 60
(IN FEET)
1 inch = 20 ft.



CONSTRUCTION ℄ LAYOUT

GENERAL NOTES

1. THE UTILITIES HAVE BEEN DISPLAYED FROM THE BEST AVAILABLE INFORMATION. THE EXACT LOCATIONS AND DEPTHS ARE UNKNOWN AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION.
2. THE CONTRACTOR SHALL CONSTRUCT A 5 FOOT WIDE CONCRETE SIDEWALK ALONG THE JOG SHOWN AT THE BEGINNING OF PROJECT LIMIT. IF THE EXISTING GRANITE CURB IS DISTURBED, THE CONTRACTOR SHALL RESET IT AT NO EXTRA COST TO THE TOWN OF WINCHESTER.
3. THE EXISTING GRANITE CURB'S CONDITION SHALL BE ASSESSED BY THE ENGINEER AND RESET FOR A 7 INCH PROPOSED REVEAL. DETERIORATED CURBING THAT IS DETERMINED BY THE ENGINEER TO BE UNUSABLE SHALL BE REPLACED BY NEW GRANITE CURBING TYPE V4.
4. THE CONDITION OF THE EXISTING FRAMES AND GRATES SHALL BE ASSESSED BY THE ENGINEER AND RESET. DETERIORATED FRAMES AND GRATES THAT ARE DETERMINED TO BE UNUSABLE SHALL BE REPLACED WITH NEW FRAMES AND GRATES.
5. THE CONTRACTOR SHALL GRADE THE BITUMINOUS CONCRETE TOWARDS THE CATCH BASINS AT STA. 10+75 RT. AND STA. 10+42 LT. THEREBY ALLOWING WATER TO DRAIN.
6. HAYBALES AND SILT FENCE SHALL BE INSTALLED AS SHOWN PRIOR TO CONSTRUCTION AND REMOVED FOLLOWING COMPLETION OF THE PROJECT.
7. THE CONTRACTOR SHALL SET THE INVERT OF THE PROPOSED CATCH BASIN AT STA. 10+75, 16' RT. THE CATCH BASIN'S 12" RCP SHALL HAVE A 0.003 FT/FT MINUMUM SLOPE TOWARDS THE DRAINAGE MAN HOLE AT STA. 10+76, 22' LT.
8. THE EXISTING 6" DIAMETER GAS MAIN SHALL BE REPLACED BY BOSTON GAS COMPANY. NEW MAIN SHALL BE 8" STEEL WITHN 12" STEEL SLEEVE. LIMITS OF NEW MAIN CONSTRUCTION SHALL MATCH PROJECT LIMITS.
9. THE CONTRACTOR SHALL MAINTAIN ALL TREES THAT DO NOT INTERFERE WITH CONSTRUCTION. ALL TREE REMOVAL IS TO BE REVIEWED AND APPROVED BY THE ENGINEER. PLACEMENT OF RIPRAP SHALL BE ADJUSTED TO AVOID DAMAGE TO REMAINING TREES.

COMMONWEALTH OF MASSACHUSETTS
MASS. HIGHWAY DEPARTMENT
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35
Ronald K. Bardoy P.E. 6/8/95
BRIDGE ENGINEER DATE

LEGEND

PROP.	PROPOSED
R&R	REMOVE AND REPLACE*
GRAN	GRANITE
CONC.	CONCRETE
ADJ.	ADJUST TO FINISHED GRADE
R&D	REMOVE AND DISPOSE
RET.	RETURN
RCP	REINFORCED CONCRETE PIPE
ELIM.	ELIMINATE

* SEE NOTE 3

ISSUED FOR CONSTRUCTION

COMMONWEALTH OF MASSACHUSETTS PAUL HOEHMER PARK STRUCTURAL No. 27107 REGISTERED PROFESSIONAL ENGINEER
Paul M Park

UNIVERSAL ENGINEERING CORPORATION
100 BOYLSTON STREET BOSTON MASS.

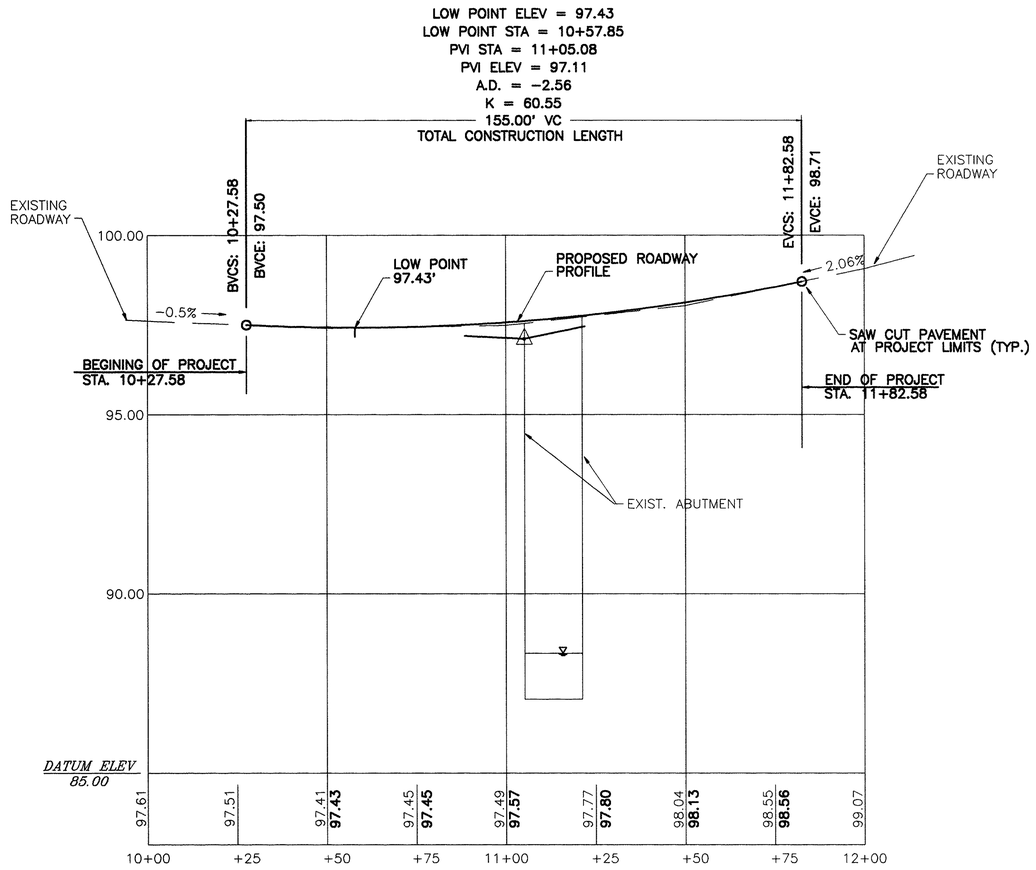
MASSHIGHWAY

PROPOSED BRIDGE
WINCHESTER

SWANTON STREET
OVER ABERJONA RIVER

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS HIGHWAY DEPARTMENT
10 PARK PLAZA BOSTON, MASS

BRIDGE ENGINEER CHIEF ENGINEER



PROFILE OF CONSTRUCTION CENTERLINE SWANTON STREET

HOR. SCALE IN FEET

0 20 50 100

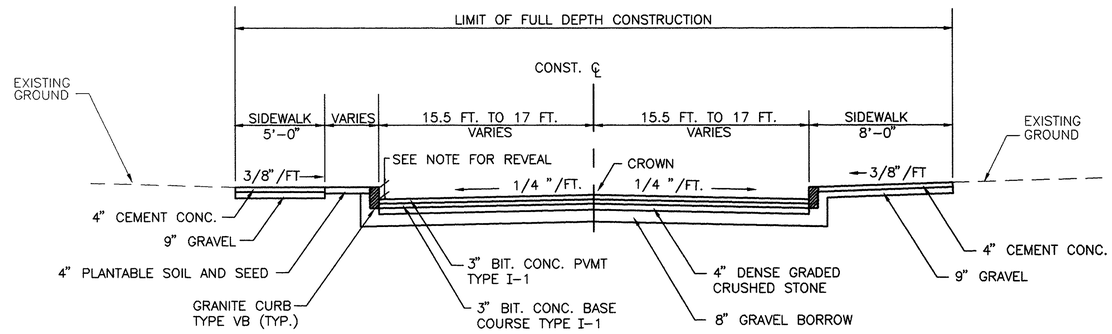
0 2 5 10

VERT. SCALE IN FEET

BENCHMARK:
FIRE HYDRANT
ASSUMED ELEV. = 100.00'
(SEE PLAN FOR LOCATION)

LEGEND:

BVCS	BEGINNING VERTICAL CURVE STATION
BVCE	BEGINNING VERTICAL CURVE ELEVATION
EVCS	ENDING VERTICAL CURVE STATION
EVCE	ENDING VERTICAL CURVE ELEVATION
A.D.	ALGEBRAIC DIFFERENCE
K	LENGTH OF CURVE/ALGEBRAIC DIFFERENCE
VC	VERTICAL CURVE



TYPICAL ROADWAY SECTION

NOT TO SCALE

CONSTRUCTION NOTES

FULL DEPTH CONSTRUCTION

SURFACE — 3 INCH CLASS I BITUMINOUS CONCRETE PAVEMENT TYPE I−1 PLACED IN TWO LAYERS, 1−1/2" MODIFIED TOP COURSE MATERIAL OVER 1−1/2" BINDER COURSE MATERIAL.

BASE — 3 INCH CLASS I BITUMINOUS CONCRETE BASE COURSE TYPE I−1, PLACED IN ONE LAYER.

SUBBASE — 4 INCH DENSE GRADED CRUSHED STONE FOR SUBBASE OVER 8 INCH GRAVEL BORROW SUBBASE.

SIDEWALK

SURFACE — 4" CLASS D − TYPE 2 CEMENT CONCRETE HAVING A 28 DAY COMPRESSIVE STRENGTH OF 4000 LBS. MATERIAL TO INCLUDE PEA STONE AND BE AIR ENTRAINED. LAMP BLACK SHALL BE ADDED TO CONC. MIX AT 1 1/4 POUNDS PER CUBIC YARD.

FOUNDATION — 9" COMPACTED GOOD GRAVEL.

DRIVEWAY APRON

SURFACE — 5" CLASS D − TYPE 2 CEMENT CONCRETE HAVING A 28 DAY COMPRESSIVE STRENGTH OF 4000 LBS. MATERIAL TO INCLUDE PEA STONE AND BE AIR ENTRAINED. LAMP BLACK SHALL BE ADDED TO CONC. MIX AT 1 1/4 POUNDS PER CUBIC YARD.

FOUNDATION — 9" COMPACTED GOOD GRAVEL.

CURB REVEAL

NORTH SIDE

THE TRANSITION IN CURB REVEAL SHALL BE AS FOLLOWS:

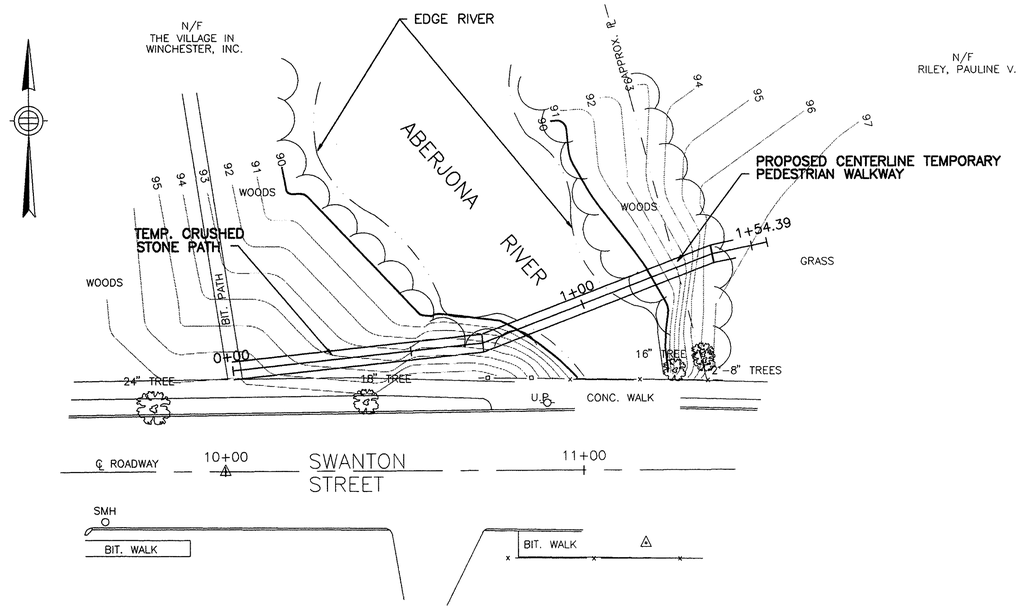
MATCH EXIST. @ STA. 10+57.28 (LT) TO 8" @ STA. 10+98 (LT)
8" @ STA. 11+23 (LT) TO MATCH EXIST. @ STA. 11+82.58 (LT)

SOUTH SIDE

THE TRANSITION IN CURB REVEAL SHALL BE AS FOLLOWS:

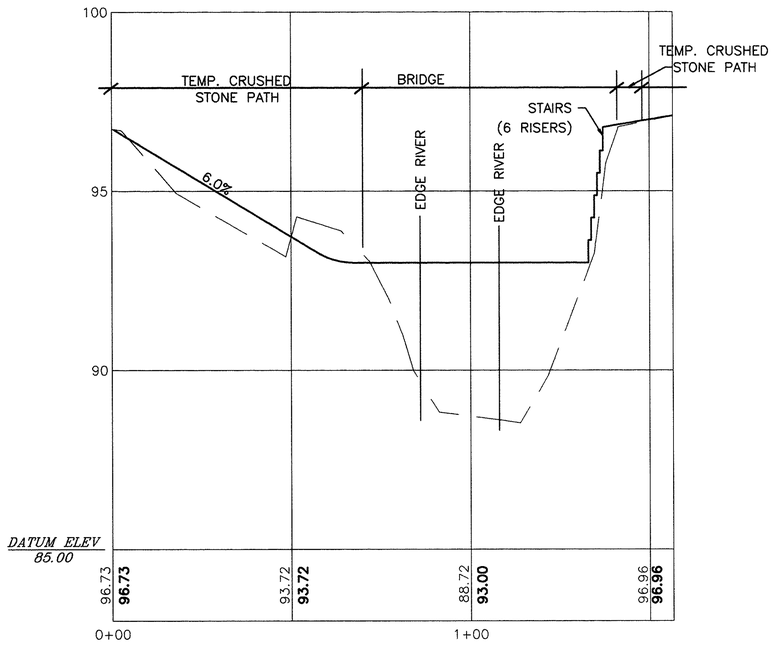
MATCH EXIST. @ STA. 10+57.28 (RT) TO 8" @ STA. 11+04.5 (RT)
8" @ STA. 11+26 (RT) TO MATCH EXIST. @ STA. 11+82.58 (RT)

	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE



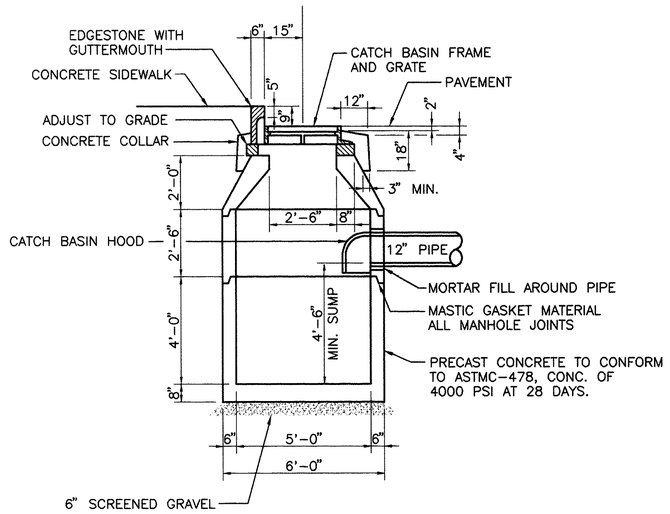
PLAN OF TEMPORARY PEDESTRIAN PATH AND BRIDGE FOR SWANTON STREET

SCALE 1" = 20'



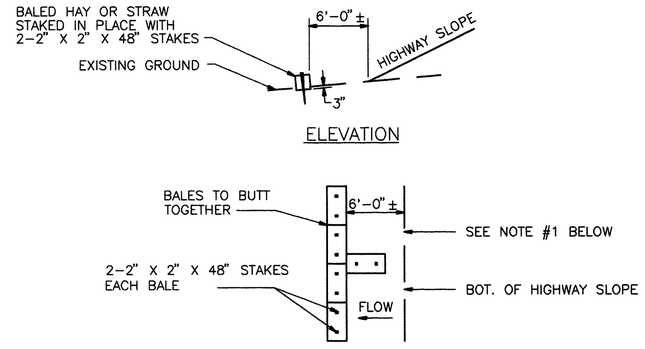
PROFILE OF TEMPORARY PEDESTRIAN PATH AND BRIDGE FOR SWANTON STREET

HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 2'



CATCH BASIN WITH OIL TRAP

SCALE 3/8" = 1'-0"



ELEVATION

PLAN

NOTES
1. AT APPROXIMATELY 50' INTERVALS A BALE IS TO BUTT PERPENDICULARLY.
2. SET BALES MIN. OF 3" INTO GROUND.
3. LOCATION AS DIRECTED BY THE ENGINEER, (PRIMARILY AROUND IDENTIFIED WETLAND AREA)

BALED HAY EROSION CHECK

DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
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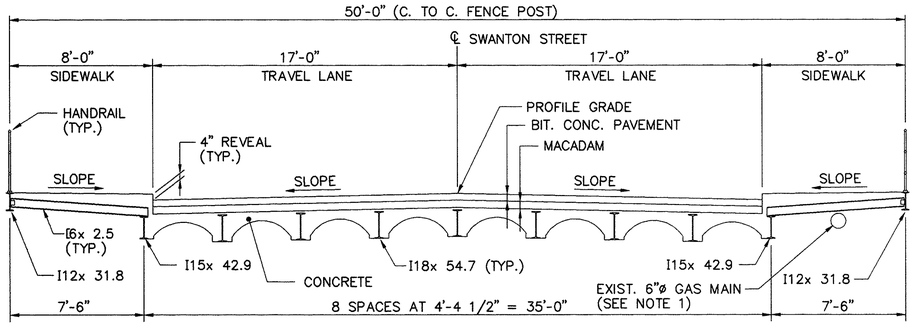


EXISTING BRIDGE-SUPERSTRUCTURE DEMOLITION (LOOKING EAST)

SCALE: 1/4" = 1'-0"

NOTES

1. EXISTING 6"ø LOW PRESSURE STEEL GAS MAIN WILL BE REPLACED AT THE SAME ALIGNMENT BY AN 8"ø GAS LINE WITHIN A 12"ø STEEL SLEEVE. NEW INSTALLATION WILL BE BY BOSTON GAS COMPANY.
2. CONTRACTOR SHALL CO-ORDINATE DEMOLITION AND ABUTMENT CAP CONSTRUCTION WITH BOSTON GAS COMPANY. SEE SHEET 6.

GENERAL BRIDGE NOTES

DESIGN:
IN ACCORDANCE WITH THE 1992 SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) (15TH EDITION) WITH INTERIM THROUGH 1994 FOR HS20-44 LOADING

DATE:
TO BE PLACED ON THE INSIDE FACE OF THE NORTHEAST AND SOUTHWEST END POSTS. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED.

BRIDGE RAILINGS:
SEE SHEET 11

SCALES:
SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR 1/4 SIZE PRINTS (11" X 18").

ANCHOR BOLTS:
ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.

REINFORCEMENT:
REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION A615 GRADE 60. ALL #4 BARS SHALL BE LAPPED 31" AND ALL #5 BARS SHALL BE LAPPED 39". FOR HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE BELOW THE BAR, THE LAP LENGTHS SHALL BE 33" FOR #4 BARS AND 44" FOR #5 BARS. IF THE ABOVE BARS ARE SPACED 6" OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE. ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE PLANS.

EPOXY COATING:
EXCEPT AT APPROACH SLABS, ALL REINFORCING BARS, SUPPORT DEVICES AND REINFORCING BAR SPLICERS SHALL BE EPOXY COATED.

UTILITIES:
THE CONTRACTOR SHALL LOCATE AND PROTECT FROM DAMAGE ALL EXISTING UTILITIES.

CONCRETE MIXES:

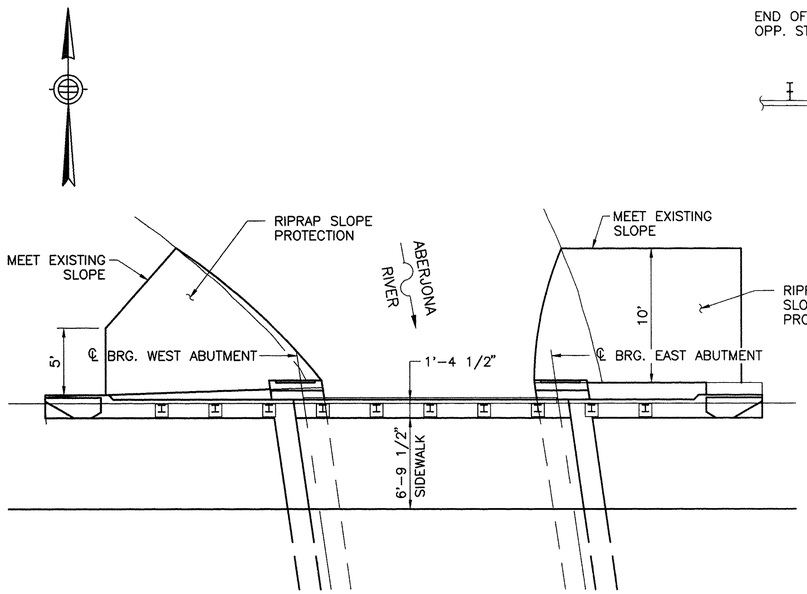
	(1)	(2)	(3)
CLASS A DENOTES:	4000	1-1/2	565
CLASS D DENOTES:	4000	3/4	610
SPECIAL CLASS:	5000	3/4	635 (SILICA FUME MODIFIED)

(1) 28-DAY COMPRESSIVE STRENGTH (PSI)
(2) MAXIMUM AGGREGATE SIZE (INCHES)
(3) CEMENT CONTENT (LB./CU. YD.)

TRAFFIC:
ROADWAY MUST BE KEPT CLOSED TO TRAFFIC AT ALL TIMES DURING THE DEMOLITION AND RECONSTRUCTION PHASES.

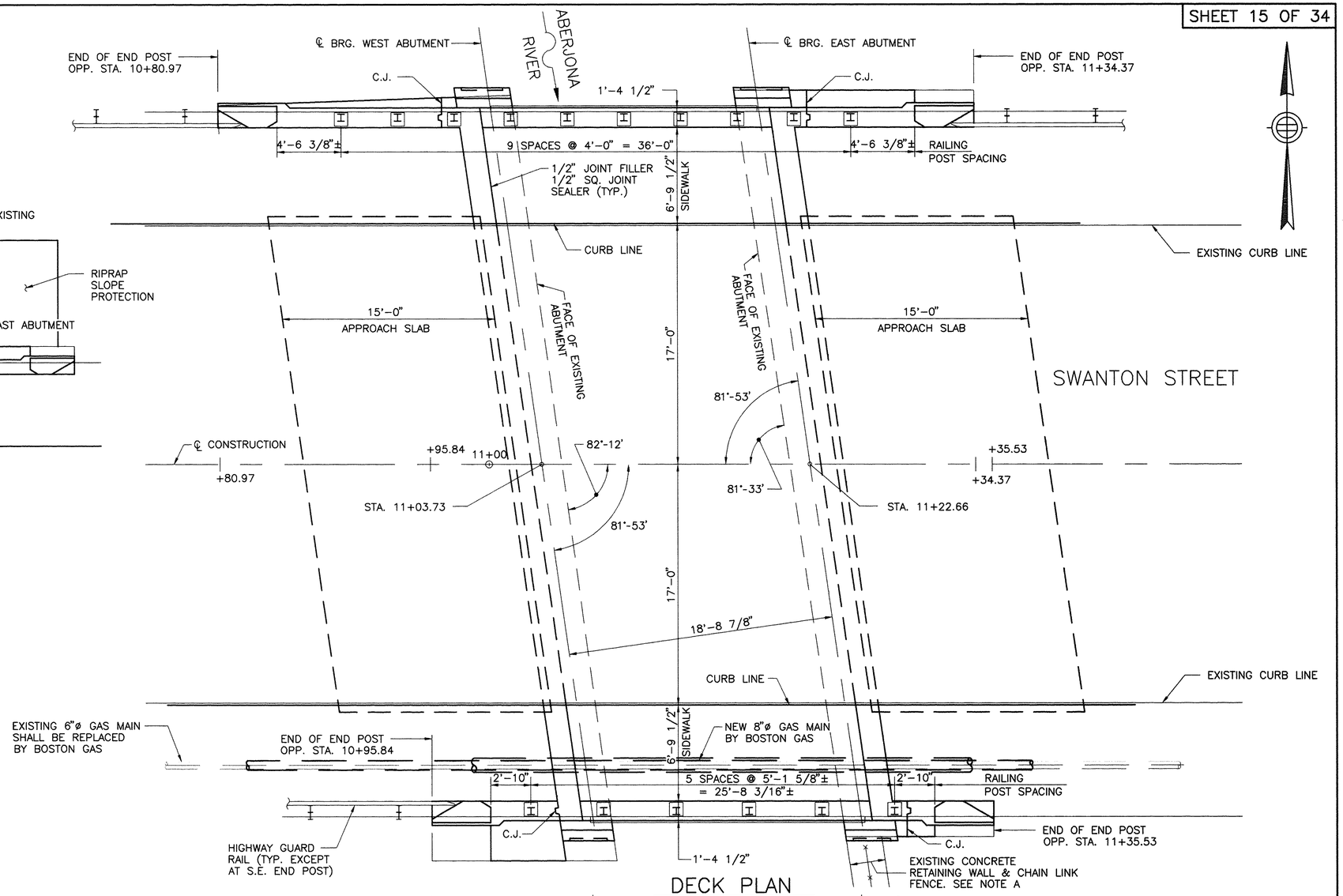
CONTAINMENT COLLAR
CONTAINMENT COLLAR/TURBIDITY BARRIER SHALL BE INSTALLED DOWNSTREAM FROM THE BRIDGE PRIOR TO START OF DEMOLITION OR CONSTRUCTION. FINAL REMOVAL SHALL BE AS DIRECTED BY THE ENGINEER.

DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE



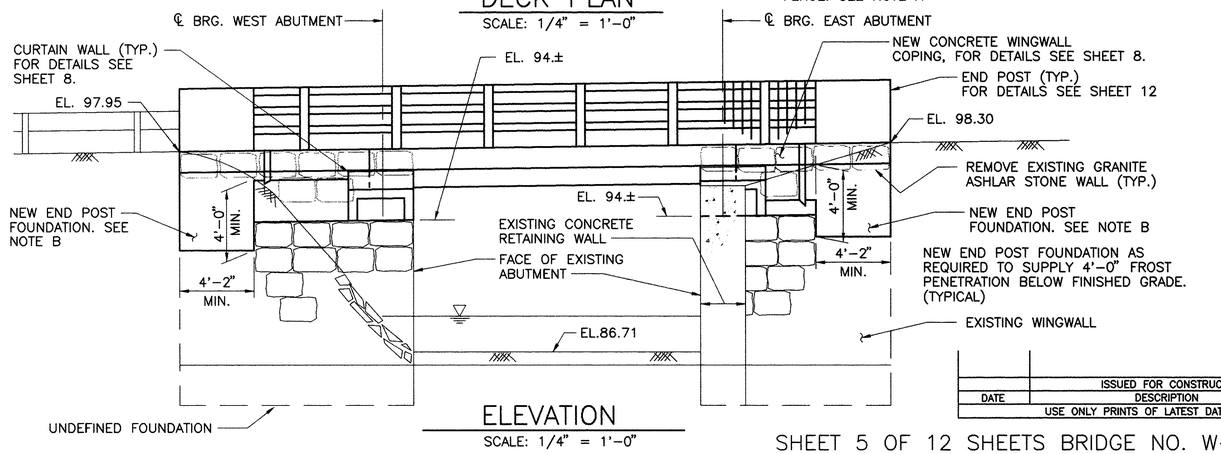
LIMITS OF SLOPE PROTECTION @ NORTH FACE OF BRIDGE

SCALE: 3/16" = 1'-0"



DECK PLAN

SCALE: 1/4" = 1'-0"


℄ BRG. WEST ABUTMENT
℄ BRG. EAST ABUTMENT
CURTAIN WALL (TYP.) FOR DETAILS SEE SHEET 8.
EL. 94.±
NEW CONCRETE WINGWALL COPING, FOR DETAILS SEE SHEET 8.
END POST (TYP.) FOR DETAILS SEE SHEET 12
EL. 97.95
EL. 98.30
REMOVE EXISTING GRANITE ASHLAR STONE WALL (TYP.)
NEW END POST FOUNDATION. SEE NOTE B
4'-0" MIN.
EL. 94.±
4'-0" MIN.
EXISTING CONCRETE RETAINING WALL
NEW END POST FOUNDATION. SEE NOTE B
FACE OF EXISTING ABUTMENT
4'-2" MIN.
4'-2" MIN.
NEW END POST FOUNDATION AS REQUIRED TO SUPPLY 4'-0" FROST PENETRATION BELOW FINISHED GRADE. (TYPICAL)
EL.86.71
EXISTING WINGWALL
UNDEFINED FOUNDATION

ELEVATION

SCALE: 1/4" = 1'-0"

NOTE A

THE EXISTING CHAIN LINK FENCE LOCATED ON TOP OF THE CONCRETE RETAINING WALL SHALL BE EXTENDED TO MEET THE NEW BRIDGE RAIL.
REMOVE EDGE OF WINGWALL AS REQUIRED TO ACCOMMODATE NEW CURTAIN WALL.
RELOCATE CHAIN LINK FENCE POST AS REQUIRED.

NOTE B

NEW END POST FOUNDATION WILL NOT BE REQUIRED IF EXISTING STONE WALL EXTENDS TO PROVIDE MINIMUM OF FOUR FOOT OF COVER BELOW FINISH GRADE.

DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

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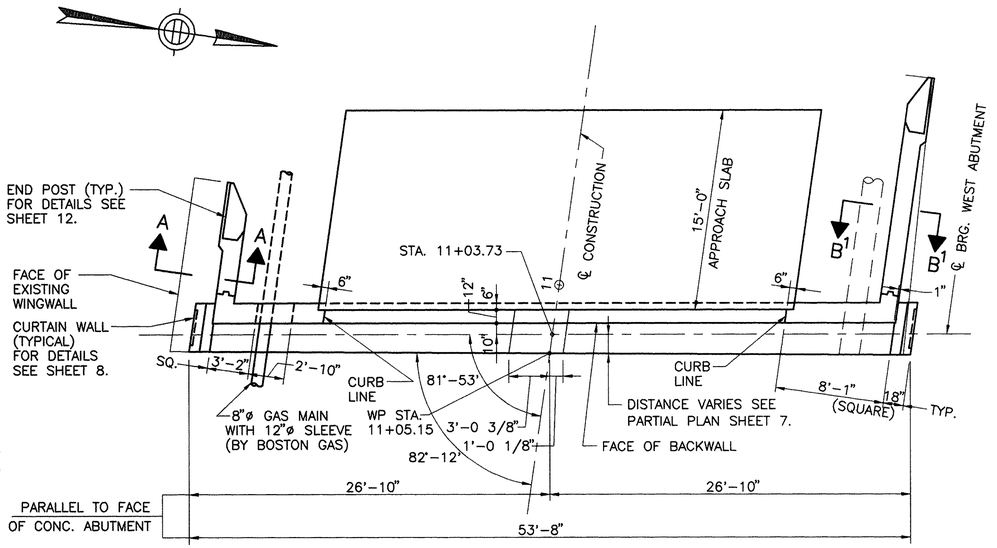
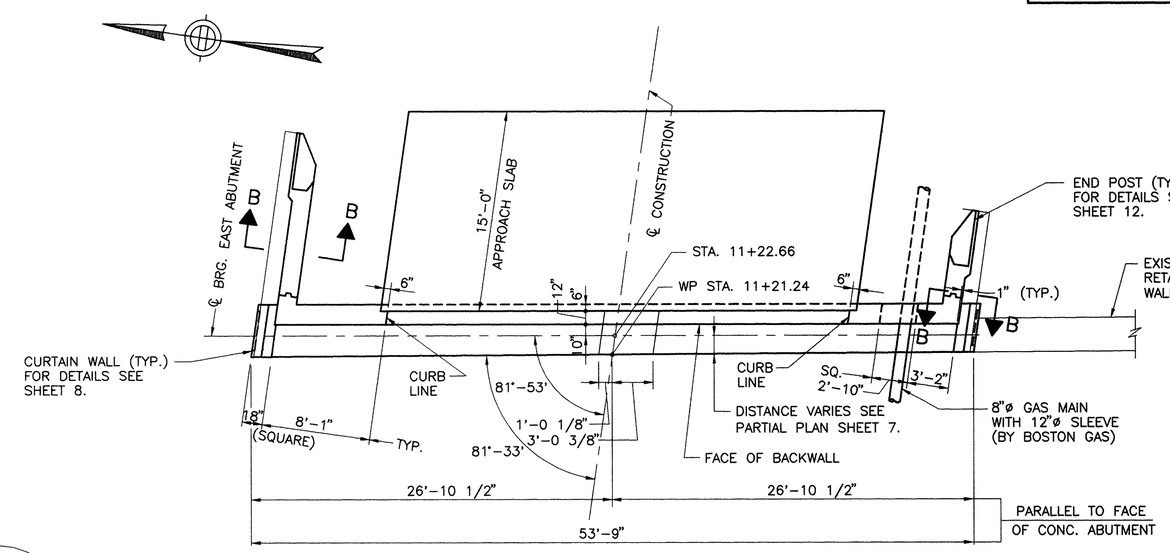


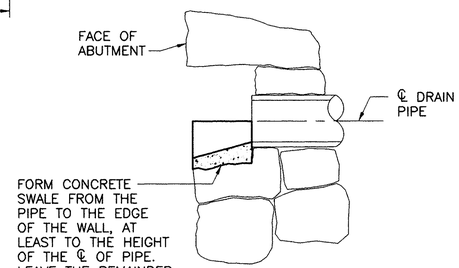
PLAN – WEST ABUTMENT

SCALE: 3/16" = 1'-0"



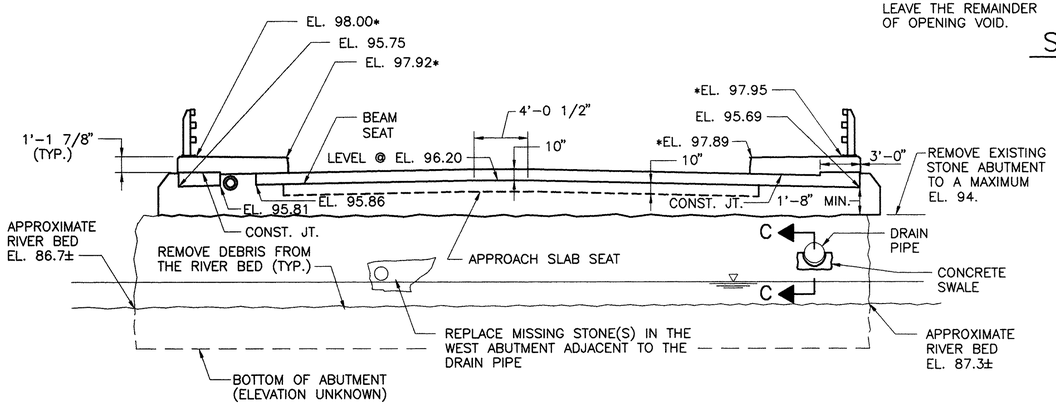
PLAN – EAST ABUTMENT

SCALE: 3/16" = 1'-0"


FACE OF ABUTMENT
℄ DRAIN PIPE
FORM CONCRETE SWALE FROM THE PIPE TO THE EDGE OF THE WALL, AT LEAST TO THE HEIGHT OF THE ℄ OF PIPE. LEAVE THE REMAINDER OF OPENING VOID.

SECTION C–C

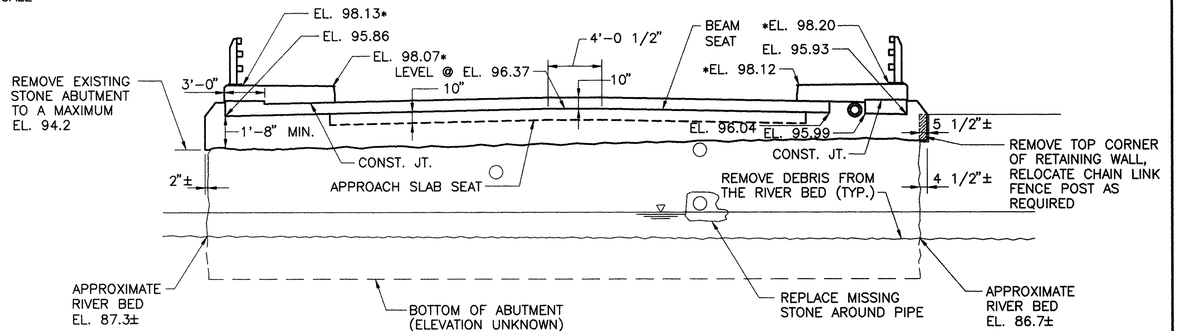
NOT TO SCALE



* ELEVATIONS ARE AT FACE OF BACKWALL

ELEVATION – WEST ABUTMENT

SCALE: 3/16" = 1'-0"



* ELEVATIONS ARE AT FACE OF BACKWALL

ELEVATION – EAST ABUTMENT

SCALE: 3/16" = 1'-0"

ABUTMENT REPAIR NOTES

1. REPLACE MISSING CHINK STONES IN THE JOINTS BETWEEN THE GRANITE ASHLAR BLOCKS OF THE DRY LAID STONE. CHINK STONES SHALL BE CUT AS NEEDED TO FIT IN THE JOINTS. STONE SHALL BE HARD GRANITE SET IN PLACE BY HAMMERING INTO POSITION. STONE SHALL BE PLACED TO FILL A MINIMUM OF 75 PERCENT OF THE OPEN JOINT.
2. REPLACE ALL THE LOOSE AND CRACKED MORTAR IN THE ABUTMENTS AND WINGWALLS.
3. REALIGN THE 1'±x2'± MISALIGNED STONE IN THE WEST ABUTMENT ADJACENT TO THE DRAIN PIPE BEFORE INSTALLING MISSING STONES.
4. MORTAR FOR STONE WORK SHALL CONFORM TO STATE SPECIFICATION M4.02.15.
5. MORTAR JOINTS AROUND DRAIN PIPES. (DO NOT MORTAR STONE JOINTS BELOW PRESENT LIMITS OF MORTAR.)
6. REMOVE ALL BRICK FROM THE ABUTMENT, INCLUDING BRICK WORK AROUND PIPES AND REPLACE WITH GRANITE..
7. FOR SECTIONS A–A, B–B AND B1–B1 SEE SHEET 8.

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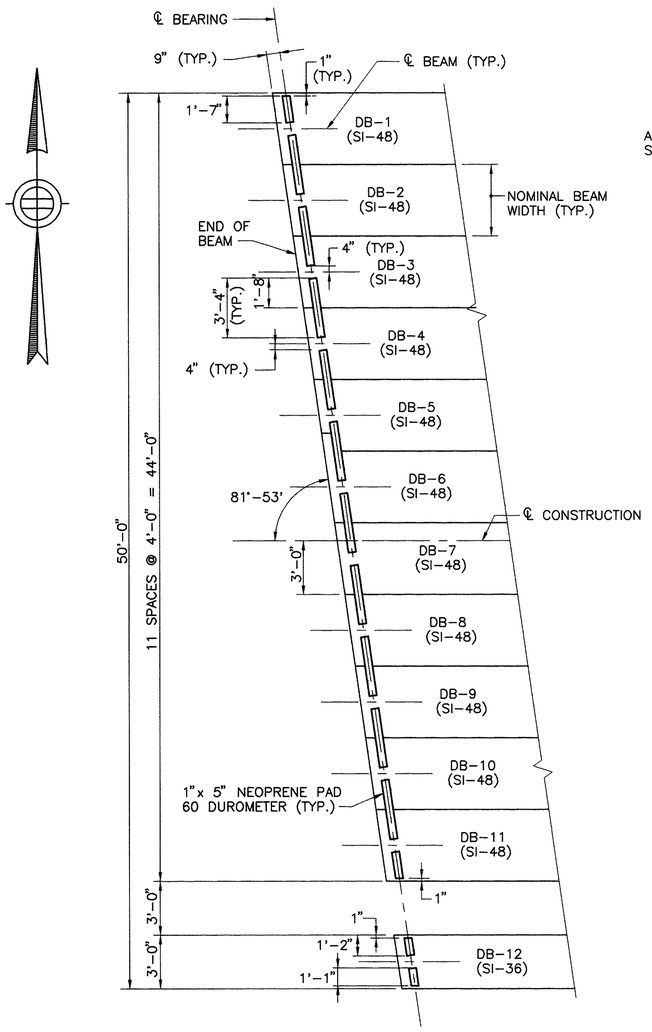
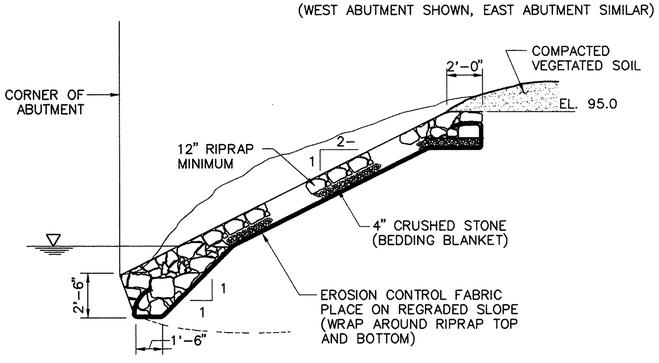


PLAN AT BEARING PADS

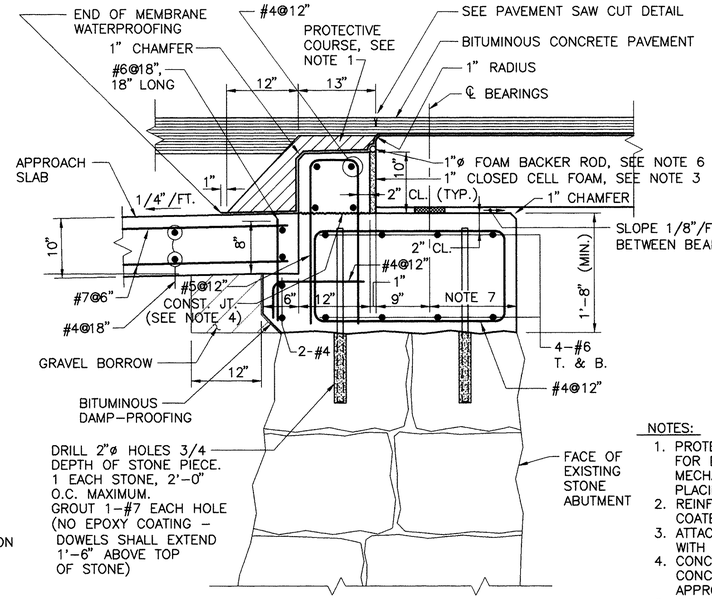
SCALE: 1/4" = 1'-0"

(WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR)



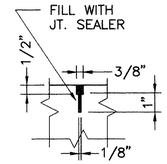
TYPICAL SLOPE PROTECTION DETAILS

SCALE: 1/4" = 1'-0"



DETAILS AT ABUTMENT - ROADWAY SECTION

SCALE: 1" = 1'-0"

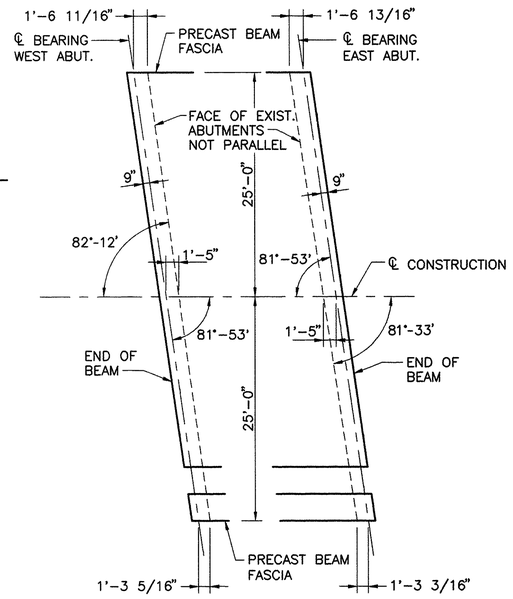


PAVEMENT SAWCUT DETAIL

SCALE: 3" = 1'-0"

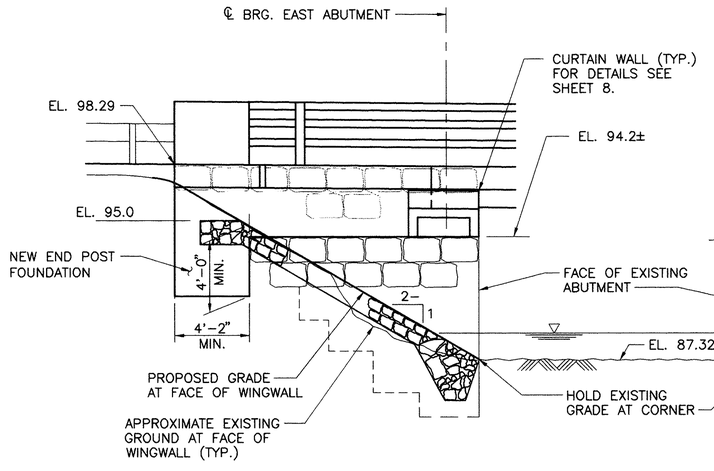
NOTES:

1. PROTECTIVE COURSE TO BE CLASS I DENSE BINDER COURSE FOR BRIDGES, PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER WITHIN 12 HOURS AFTER PLACING MEMBRANE WATERPROOFING.
2. REINFORCING SHOWN IN ABUTMENT DETAIL SHALL BE EPOXY COATED, EXCEPT FOR APPROACH SLAB REINFORCEMENT.
3. ATTACH CLOSED CELL FOAM TO BACK OF PRECAST BEAM WITH ADHESIVE.
4. CONCRETE ABOVE CONSTRUCTION JOINT SHALL BE CLASS D CEMENT CONCRETE MASONRY. CONCRETE BELOW CONSTRUCTION JOINT AND IN APPROACH SLAB SHALL BE CLASS A CEM. CONC. MASONRY.
5. CONCRETE BACKWALL SHALL BE PLACED AFTER ALL BEAMS HAVE BEEN ERECTED. THE CONCRETE BELOW THE BACKWALL AT THE CONSTRUCTION JOINT SHALL BE FINISHED WITH A ROUGHENED SURFACE OF 1/4" AMPLITUDE.
6. DRAPE MEMBRANE WATERPROOFING OVER CLOSED CELL FOAM BACKER ROD.
7. DIMENSION VARIES. SEE PARTIAL PLAN THIS SHEET.



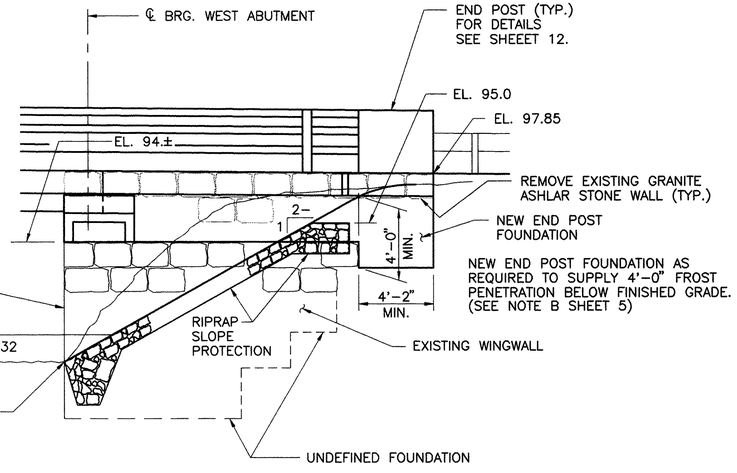
PARTIAL PLAN

SCALE: 1/8" = 1'-0"



NORTHEAST WINGWALL ELEVATION

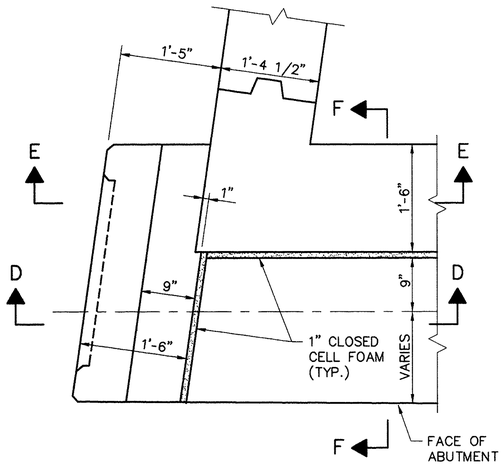
SCALE: 1/4" = 1'-0"


℄ BRG. WEST ABUTMENT
END POST (TYP.) FOR DETAILS SEE SHEEET 12.
EL. 95.0
EL. 97.85
EL. 94.±
REMOVE EXISTING GRANITE ASHLAR STONE WALL (TYP.)
2-
1
4'-0" MIN.
NEW END POST FOUNDATION
NEW END POST FOUNDATION AS REQUIRED TO SUPPLY 4'-0" FROST PENETRATION BELOW FINISHED GRADE. (SEE NOTE B SHEET 5)
4'-2" MIN.
RIPRAP SLOPE PROTECTION
EXISTING WINGWALL
UNDEFINED FOUNDATION

NORTHWEST WINGWALL ELEVATION

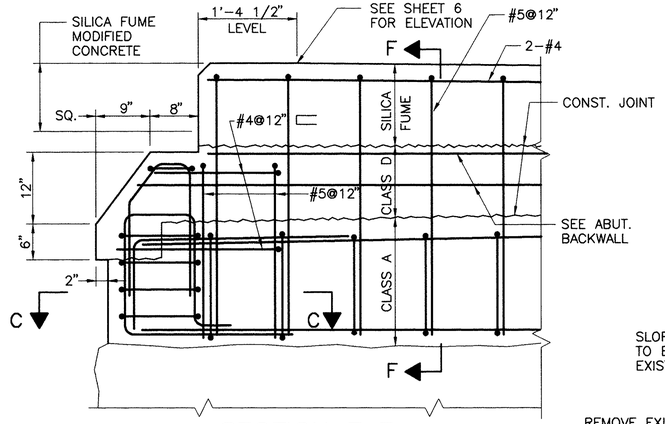
SCALE: 1/4" = 1'-0"

DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE



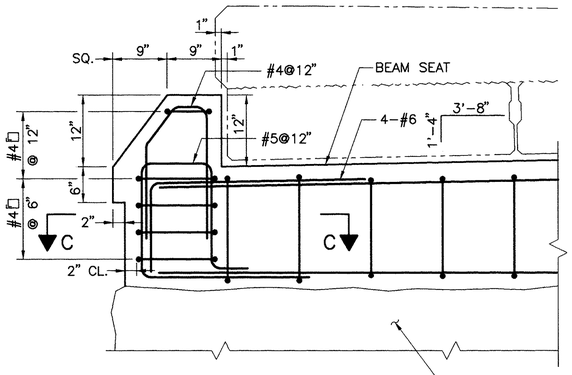
PLAN

SCALE: 1" = 1'-0"



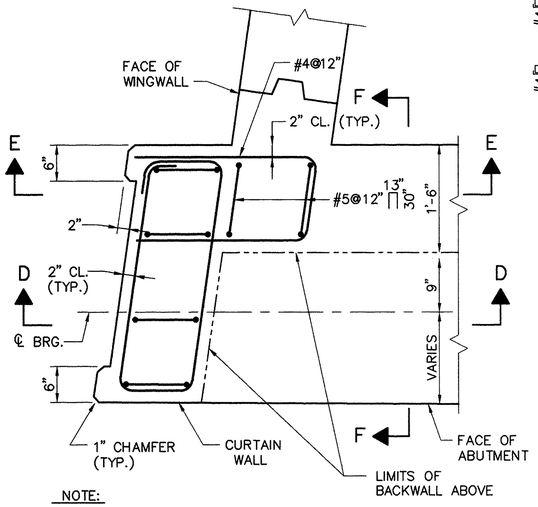
SECTION E-E

SCALE: 1" = 1'-0"



SECTION D-D

SCALE: 1" = 1'-0"

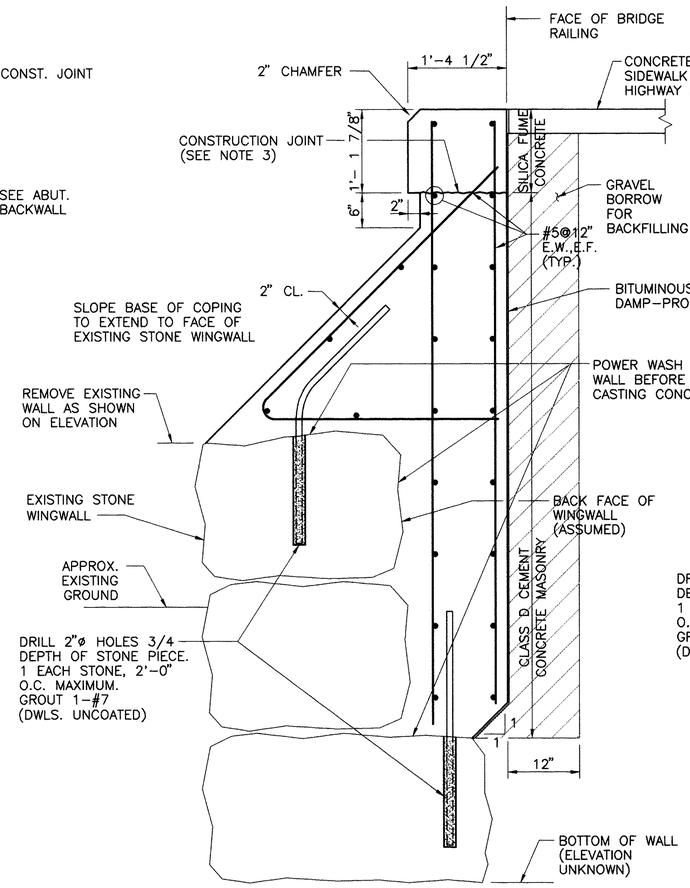


NOTE:

ATTACH CLOSED CELL FOAM TO THE BACK AND SIDE OF THE EXTERIOR PRECAST BEAM PRIOR TO PLACING THE CONCRETE FOR THE BACKWALL AND CURTAIN WALL.

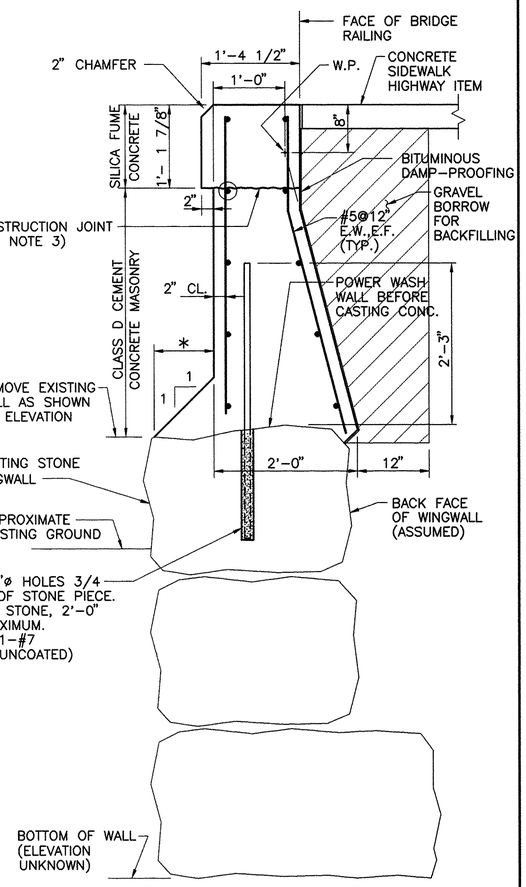
SECTION C-C

SCALE: 1" = 1'-0"


FACE OF BRIDGE RAILING
2" CHAMFER
1'-4 1/2"
CONCRETE SIDEWALK HIGHWAY ITEM
CONSTRUCTION JOINT (SEE NOTE 3)
1'- 1 7/8"
6"
2"
SILICA FUME CONCRETE
GRAVEL BORROW FOR BACKFILLING
#5@12" E.W., E.F. (TYP.)
2" CL.
BITUMINOUS DAMP-PROOFING
SLOPE BASE OF COPING TO EXTEND TO FACE OF EXISTING STONE WINGWALL
POWER WASH WALL BEFORE CASTING CONC.
REMOVE EXISTING WALL AS SHOWN ON ELEVATION
EXISTING STONE WINGWALL
BACK FACE OF WINGWALL (ASSUMED)
APPROX. EXISTING GROUND
DRILL 2"ø HOLES 3/4 DEPTH OF STONE PIECE. 1 EACH STONE, 2'-0" O.C. MAXIMUM. GROUT 1-#7 (DWLS. UNCOATED)
CLASS D CEMENT CONCRETE MASONRY
1
1
12"
BOTTOM OF WALL (ELEVATION UNKNOWN)

SECTION A-A

SCALE: 1" = 1'-0"



* SECTION $B^1 - B^1$ SIMILAR EXCEPT DISTANCE VARIES.

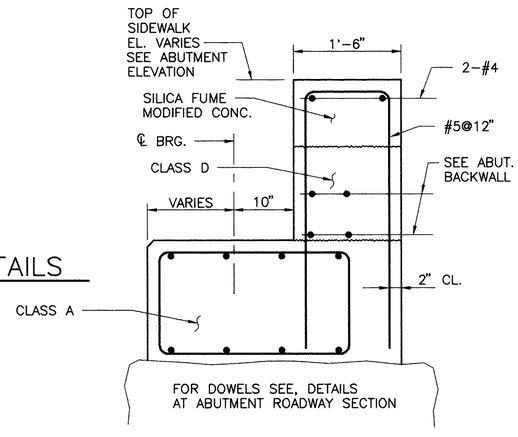
SECTION B-B & $B^1 - B^1$

SCALE: 1" = 1'-0"

NOTES:

1. ALL REINFORCING SHALL BE EPOXY COATED.
2. FOR SECTIONS A-A, B-B, AND CURTAIN WALL SEE SHEET 6.
3. CONSTRUCTION JOINT BETWEEN CLASS D AND SILICA FUME MODIFIED CONCRETE SHALL BE FINISHED WITH A ROUGHENED SURFACE OF 1/4" AMPLITUDE.

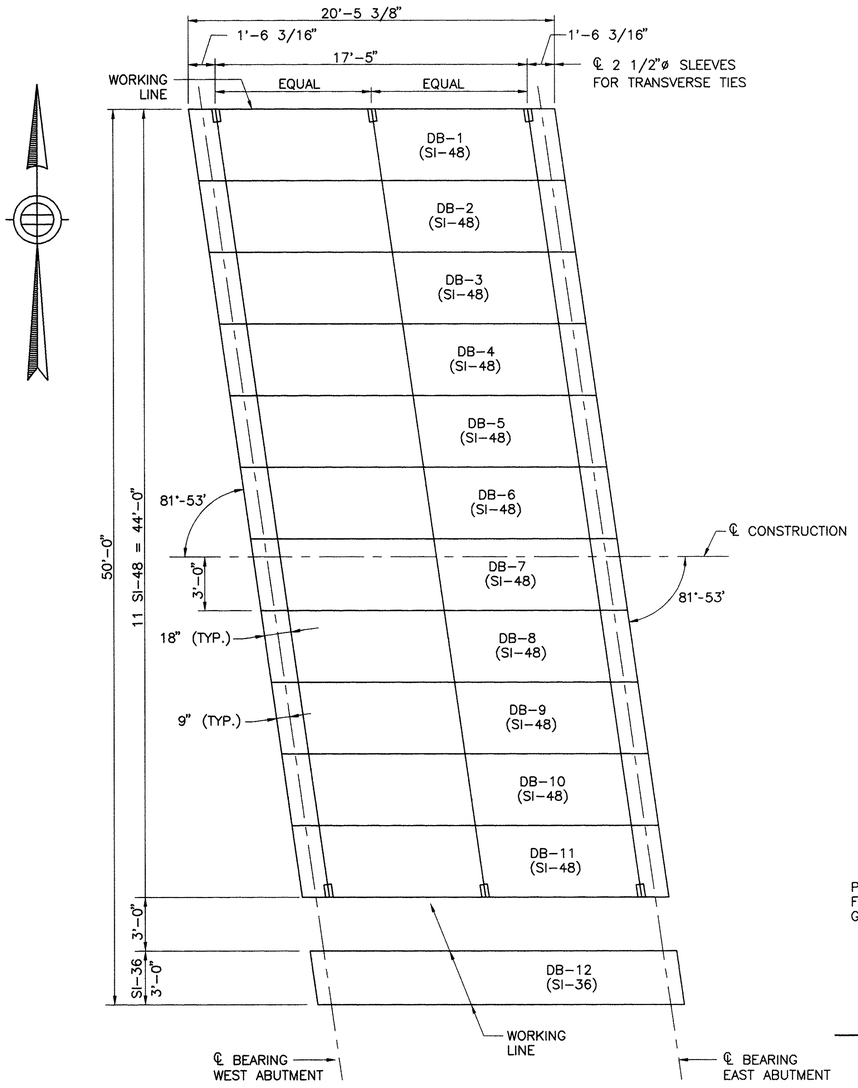
CURTAIN WALL DETAILS



SECTION F-F

SCALE: 1" = 1'-0"

DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

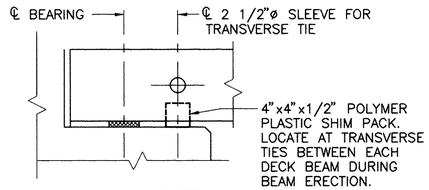


FRAMING PLAN
SCALE: 1/4" = 1'-0"

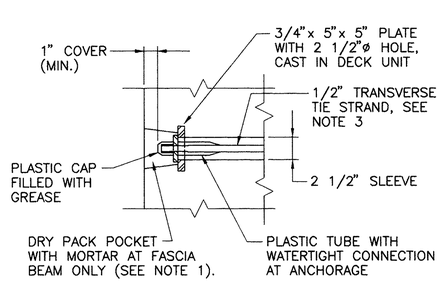
NOTES:
1. SEE STANDARD SPECIFICATIONS FOR BEAM ERECTION AND LAYOUT.

PRESTRESS NOTES:

1. ALL PRETENSIONING ELEMENTS SHALL BE 1/2"ø, UNCOATED, SEVEN-WIRE, LOW RELAXATION STEEL STRANDS AND SHALL CONFORM TO AASHTO M203.
2. THE MINIMUM ULTIMATE TENSILE STRENGTH OF THE PRETENSIONING STRANDS SHALL BE 270,000 POUNDS PER SQUARE INCH.
3. THE INITIAL TENSION PER 1/2"ø STRAND SHALL BE 30,980 POUNDS.
4. THE MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 6000 P.S.I.
5. NO PRESTRESS SHALL BE TRANSFERRED TO THE CONCRETE UNTIL IT HAS ATTAINED A COMPRESSIVE STRENGTH, AS SHOWN BY A CYLINDER TEST, OF AT LEAST 4000 P.S.I.
6. THE TOP OF ALL BEAMS SHALL BE GIVEN A SMOOTH FINISH EXCEPT AS NOTED ON THE PLANS.
7. THE FABRICATOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.


℄ BEARING
℄ 2 1/2"ø SLEEVE FOR TRANSVERSE TIE
4"x4"x1/2" POLYMER PLASTIC SHIM PACK. LOCATE AT TRANSVERSE TIES BETWEEN EACH DECK BEAM DURING BEAM ERECTION.

SHIM DETAIL FOR DECK BEAMS
SCALE: 1" = 1'-0"

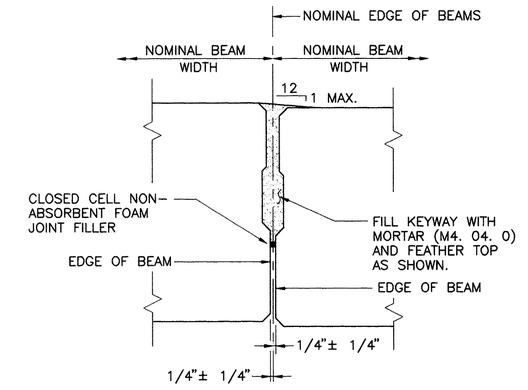

1" COVER (MIN.)
3/4"x 5"x 5" PLATE WITH 2 1/2"ø HOLE, CAST IN DECK UNIT
1/2" TRANSVERSE TIE STRAND, SEE NOTE 3
2 1/2" SLEEVE
PLASTIC CAP FILLED WITH GREASE
DRY PACK POCKET WITH MORTAR AT FASCIA BEAM ONLY (SEE NOTE 1).
PLASTIC TUBE WITH WATERTIGHT CONNECTION AT ANCHORAGE

TRANSVERSE TIE POCKET DETAIL
SCALE: 1 1/2" = 1'-0"

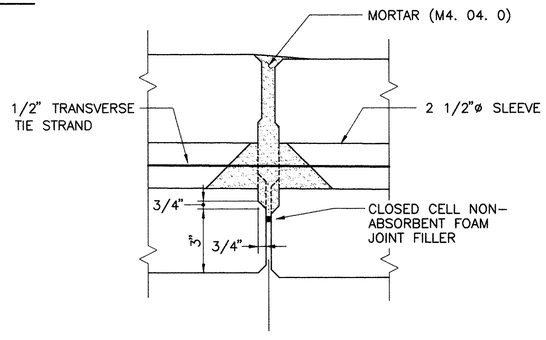
NOTES:
1. MORTAR FOR EXTERIOR POCKETS SHALL CONFORM TO M4. 02. 15 AND SHALL BE THE SAME COLOR AND TEXTURE AS THE BEAM CONCRETE.
2. OTHER ANCHORAGE SYSTEMS MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER. ALTERNATE ANCHORAGE SYSTEMS SHALL BE WATERTIGHT AND CORRISION PROOF.
3. TRANSVERSE TIES SHALL BE COVERED BY A SEAMLESS POLYPROPYLENE SHEATH (WITH CORRISION INHIBITING GREASE BETWEEN THE STRAND AND SHEATH) FOR THE FULL LENGTH OF THE STRAND EXCEPT AT THE ANCHORAGE LOCATION.

TRANSVERSE TIE TENSIONING NOTES:

1. AFTER ALL BEAMS HAVE BEEN ERECTED, TENSION EACH TRANSVERSE TIE TO 5,000 POUNDS.
2. FILL ALL KEYWAYS WITH MORTAR (M4. 04. 0). IF THE KEYWAYS ARE NOT FILLED WITHIN FIVE DAYS AFTER THE BEAMS ARE ERECTED, THE CONTRACTOR SHALL COVER AND PROTECT THE KEYWAYS FROM THE WEATHER AND DEBRIS UNTIL THEY ARE FILLED.
3. AFTER THE MORTAR HAS CURED, TENSION EACH TRANSVERSE TIE TO 30,000 POUNDS. NO TRAFFIC OR HEAVY EQUIPMENT WILL BE PERMITTED ON THE BEAMS UNTIL ALL TIES HAVE BEEN PROPERLY TENSIONED.
4. CONCRETE FOR SIDEWALK, CURB AND/OR BARRIER SECTIONS SHALL BE PLACED AFTER THE TRANSVERSE TIES HAVE BEEN FULLY TENSIONED.

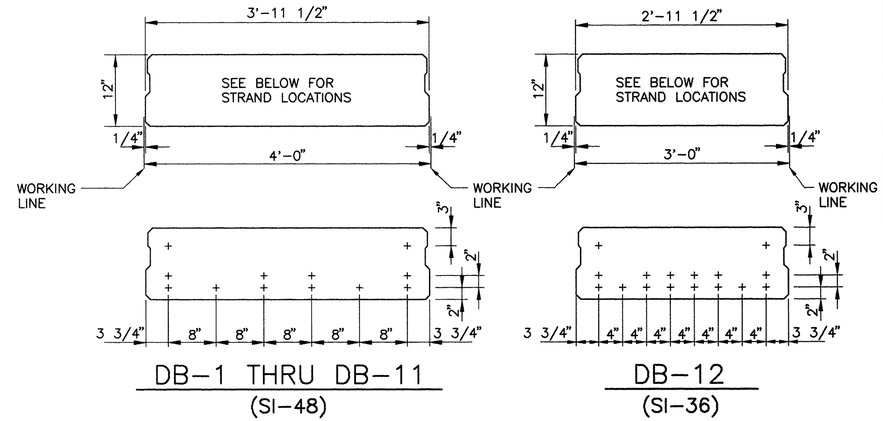


TYP. LONGITUDINAL JT. SECTION
NOT TO SCALE



SECTION A-A
NOT TO SCALE

NOTES:
1. SEE TYPICAL LONGITUDINAL JOINT SECTION FOR JOINT DETAILS NOT SHOWN HERE.
2. SEE TRANSVERSE TIE TENSIONING NOTES FOR THE TENSIONING PROCEDURE.

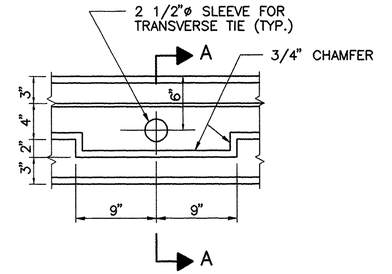


DB-1 THRU DB-11
(SI-48)

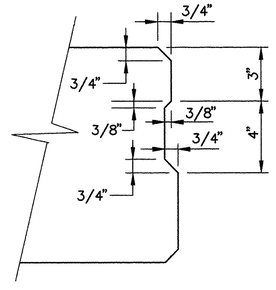
DB-12
(SI-36)

NOTES:
1. ELIMINATE SHEAR KEY ON THE NORTH SIDE OF DB-1.
2. ELIMINATE SHEAR KEY ON THE SOUTH SIDE OF DB-11.
3. ELIMINATE SHEAR KEYS ON BOTH SIDES OF DB-12.

STRAND LOCATIONS
SCALE: 1" = 1'-0"



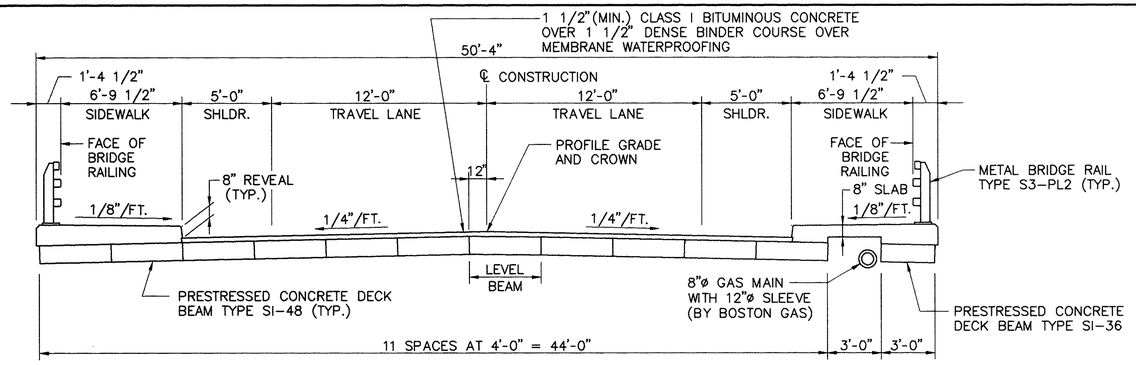
TYPICAL BEAM ELEVATION AT AT TRANSVERSE TIE LOCATION
SCALE: 1 1/2" = 1'-0"



DEPTH OF SHEAR KEY VARIES AT TRANSVERSE TIE LOCATIONS.

SHEAR KEY DETAILS
SCALE: 3" = 1'-0"

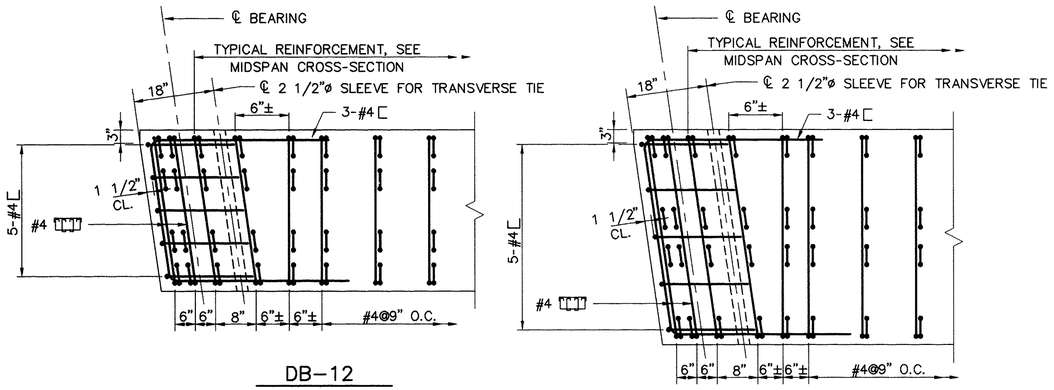
DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE



TYPICAL DECK SECTION

SCALE: 1/4" = 1'-0"

NOTE:
CONCRETE IN SIDEWALK SHALL BE SILICA FUME MODIFIED.

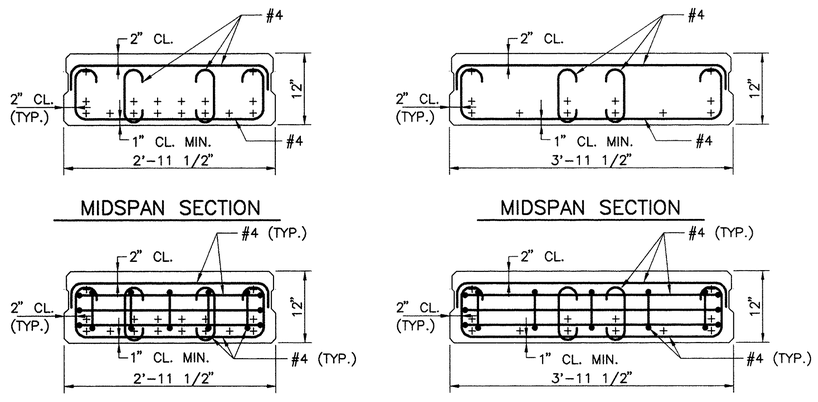


DB-12
(SI-36)

DB-1 THRU DB-11
(SI-48)

END OF BEAM PLANS

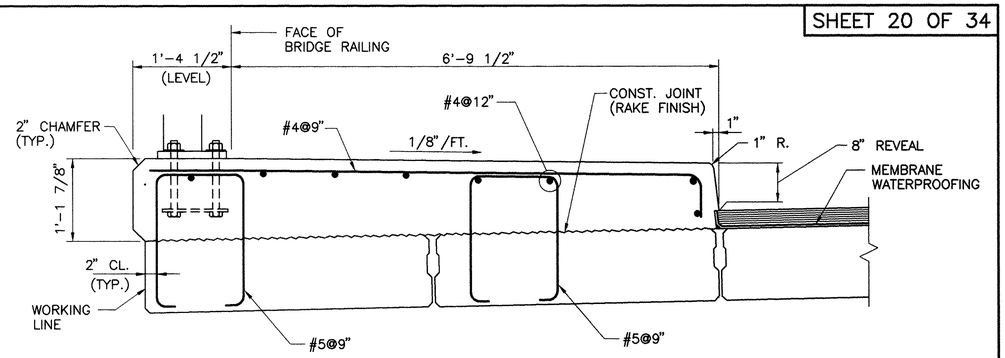
SCALE: 3/4" = 1'-0"
(TYPICAL EACH END OF BEAM)



BEAM SECTION NOTES

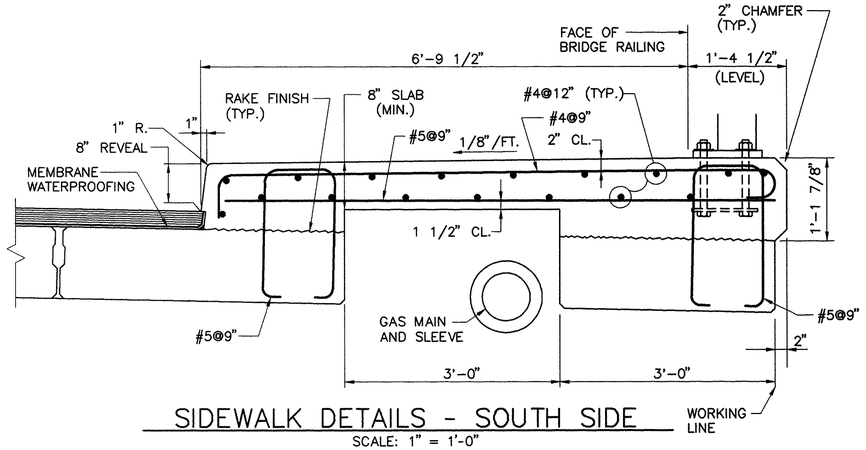
1. SEE SHEAR KEY DETAIL ON SHEET 9.
2. SEE END OF BEAM PLAN FOR STIRRUP SPACING.
3. ALL FOUR CORNERS OF BEAM SHALL HAVE 3/4" CHAMFERS EXCEPT DB-1, DB-11 & DB-12 (SEE SIDEWALK DETAILS).
4. FOR STRAND SPACING AND BEAM DIMENSIONS SEE SHEET 9.
5. FOR DOWELS SEE SIDEWALK DETAILS.
6. REINFORCING STEEL SHALL BE EPOXY COATED.

REINFORCING DETAILS



SIDEWALK DETAILS - NORTH SIDE

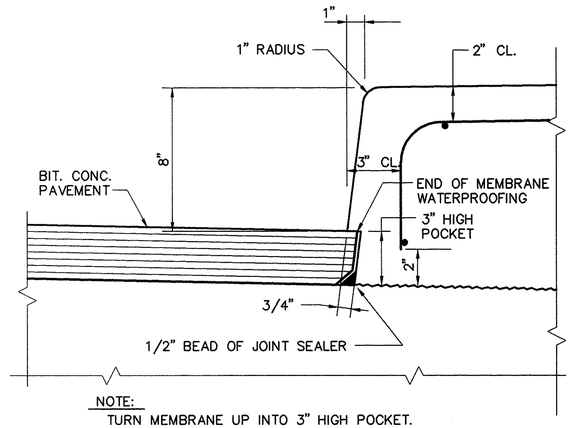
SCALE: 1" = 1'-0"



SIDEWALK DETAILS - SOUTH SIDE

SCALE: 1" = 1'-0"

NOTE:
SIDEWALK CONCRETE SHALL BE SILICA FUME MODIFIED CEMENT CONCRETE MASONRY.

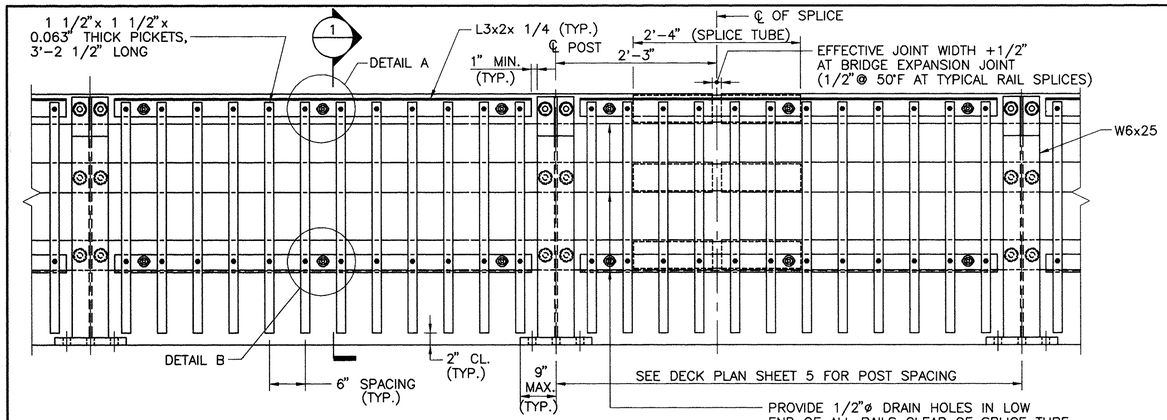


NOTE:
TURN MEMBRANE UP INTO 3" HIGH POCKET.

DETAIL AT CURB

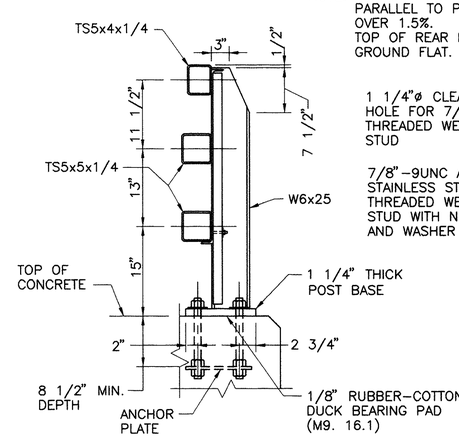
SCALE: 3" = 1'-0"

DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE



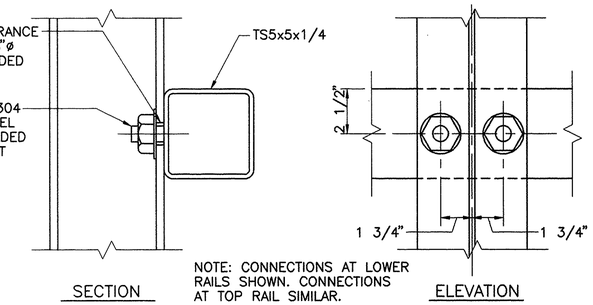
BRIDGE RAILING ELEVATION

SCALE: 1" = 1"-0"



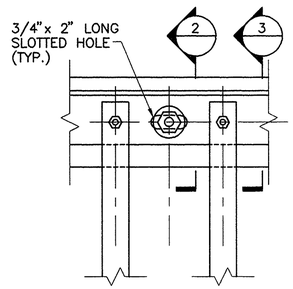
SECTION 1

SCALE: 1" = 1"-0"

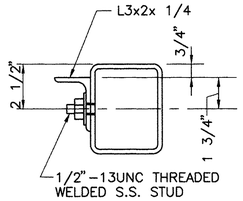


TYPICAL RAIL TO POST CONNECTIONS

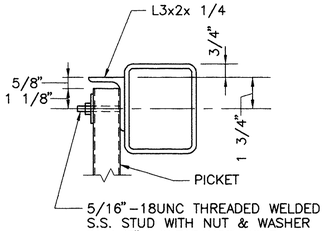
SCALE: 3" = 1"-0"



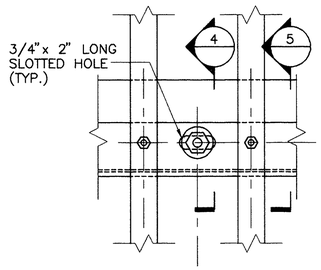
DETAIL A



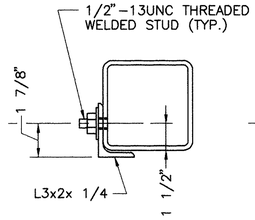
SECTION 2



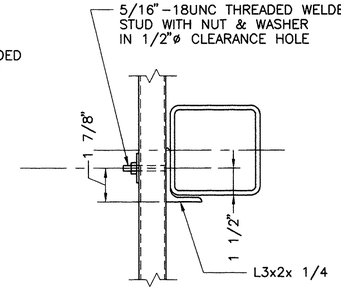
SECTION 3



DETAIL B



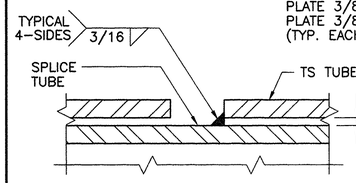
SECTION 4



SECTION 5

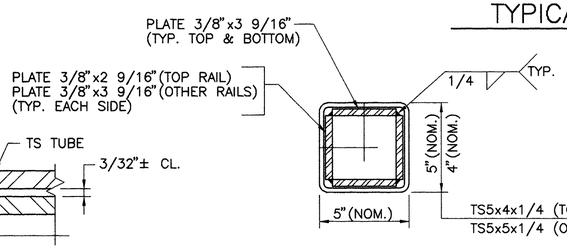
TYPICAL PICKET TO RAIL DETAILS

SCALE: 3" = 1"-0"



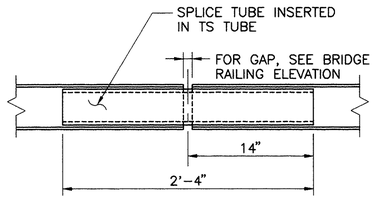
SPLICE DETAIL

NOT TO SCALE



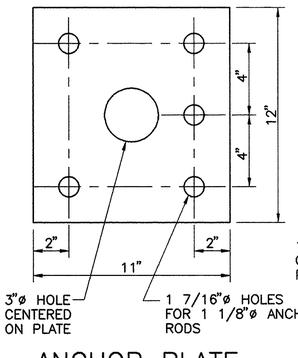
SPLICE TUBE DETAILS

SCALE: 3" = 1"-0"



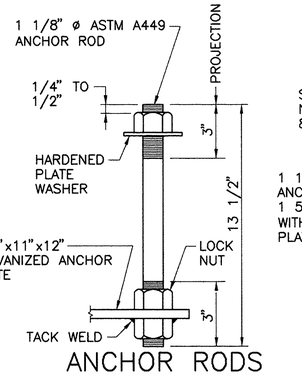
TYPICAL SPLICE

SCALE: 1 1/2" = 1"-0"



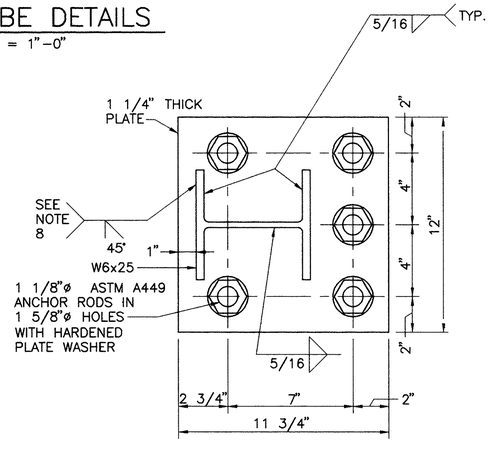
ANCHOR PLATE

SCALE: 3" = 1"-0"



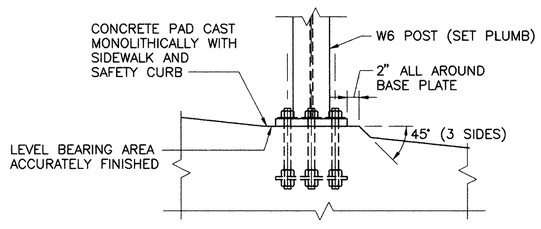
ANCHOR RODS

SCALE: 3" = 1"-0"



POST BASE

SCALE: 3" = 1"-0"



SETTING OF POSTS

(PROFILE GRADE OVER 1.5%)
SCALE 1" = 1'-0"

RAILING NOTES:

1. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M270 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE C. PICKET CARRIER ANGLES, ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M270 GRADE 36. PICKET TUBING SHALL CONFORM TO ASTM A513 WITH FY = 36 KSI MIN. OR A500 GRADE B.
2. ANCHOR RODS, NUTS, AND WASHERS SHALL BE HIGH-STRENGTH ASTM A449 FASTENERS AS DESCRIBED IN THE SPECIAL PROVISIONS. ROD MAY BE FULLY THREADED.
3. ALL STEEL SHALL BE GALVANIZED AND PAINTED DARK BRONZE BY THE GALVANIZER IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
4. ANCHOR RODS SHALL BE SET WITH TEMPLATE. THE TOP NUT OF THE ANCHOR RODS SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
5. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR (4) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
6. ENDS OF TUBE SECTIONS SHALL BE SAWED AND MILLED. GRIND SMOOTH EDGES EXPOSED TO PEDESTRIAN TRAFFIC. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
7. ALL POSTS TO BE PLUMB WHEN PROFILE GRADE EXCEEDS 1.5%. FOR PROFILE GRADES LESS THAN 1.5%, POSTS SHALL BE SET PERPENDICULAR TO GRADE.
8. POST FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING. WELD SHALL BE BACK-GOUGED ON BACK SIDE EXCEPT AT WEB. WELD IS THE SAME ON BOTH FLANGES.

DATE	DESCRIPTION
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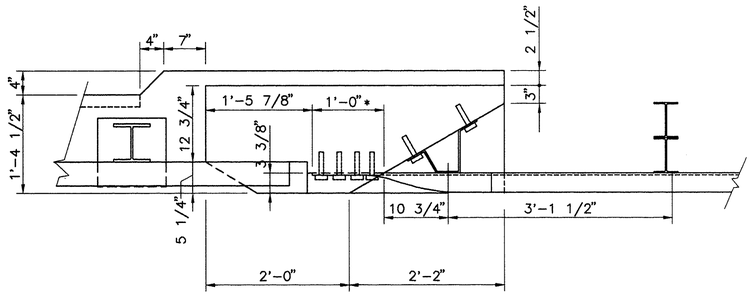
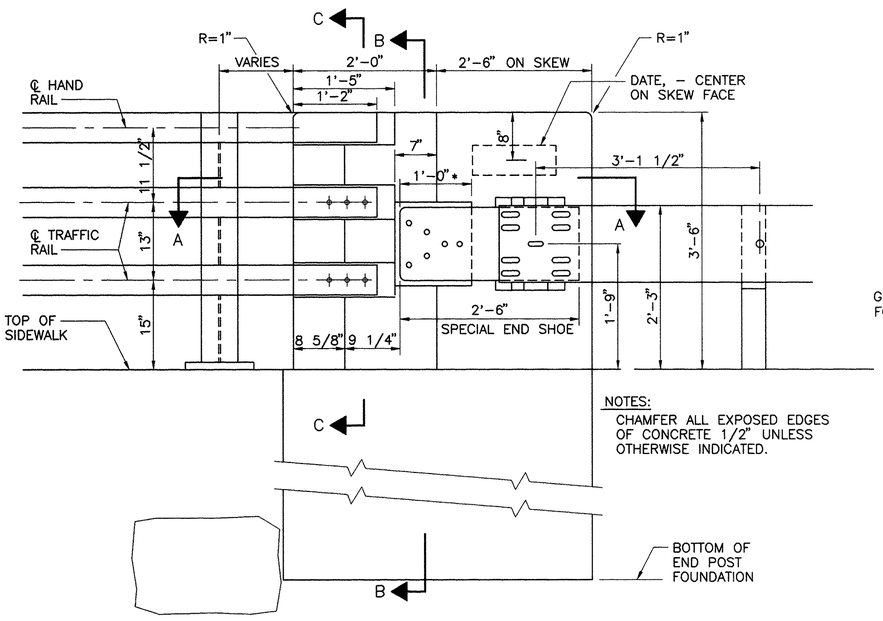
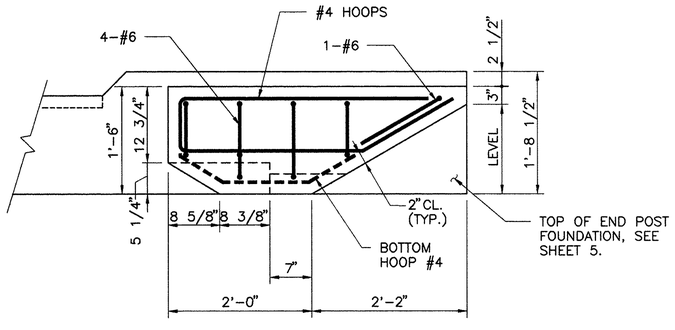


PLAN

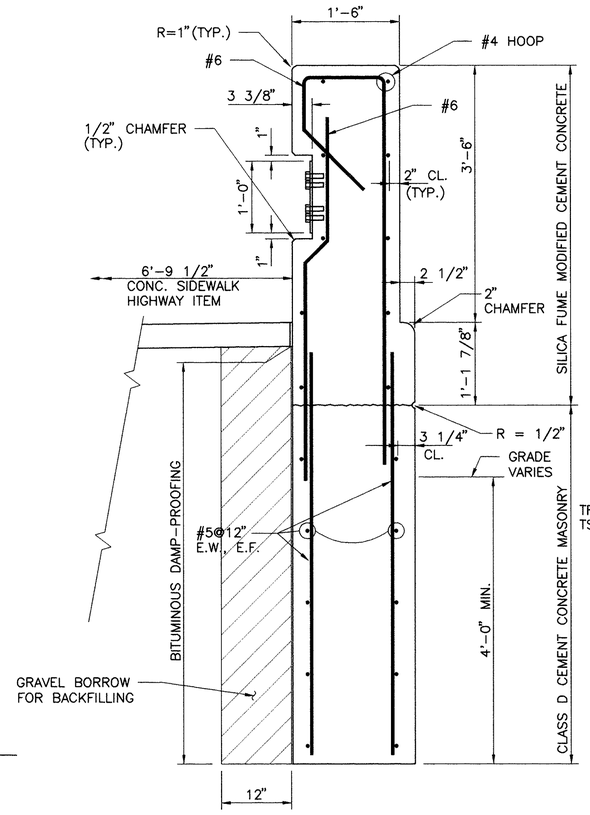


* ELIMINATE THE GUARD RAIL RECESS AT THE SOUTHEAST ENDPOST

ELEVATION



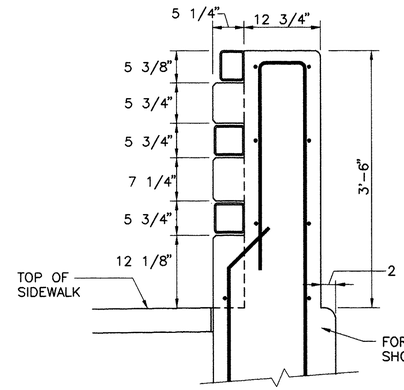
SECTION A–A



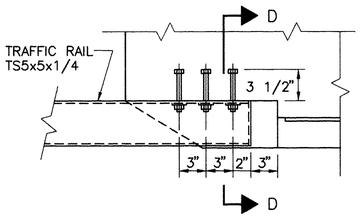
SECTION B–B

NOTE
ALL REINFORCING BARS IN END POSTS SHALL BE EPOXY COATED.

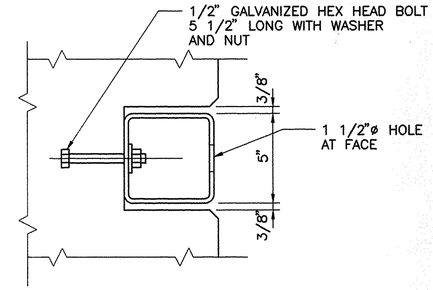
END POST DETAILS
SCALE: 1" = 1'–0"



SECTION C–C

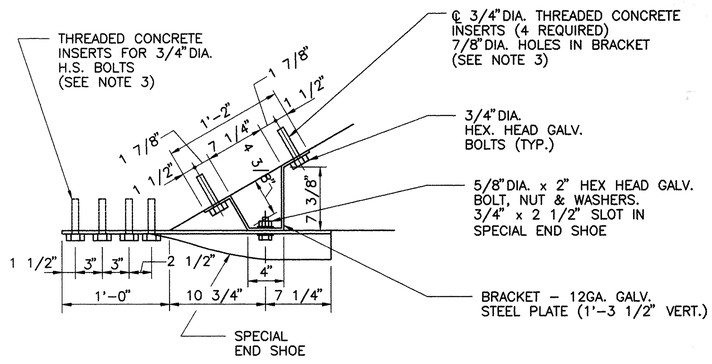


PLAN
SCALE: 1 1/2" = 1'–0"



SECTION D–D
SCALE: 3" = 1'–0"

TRAFFIC RAIL ATTACHMENT DETAILS


THREADED CONCRETE INSERTS FOR 3/4" DIA. H.S. BOLTS (SEE NOTE 3)
℄ 3/4" DIA. THREADED CONCRETE INSERTS (4 REQUIRED) 7/8" DIA. HOLES IN BRACKET (SEE NOTE 3)
1 7/8"
1'-2"
1 1/2"
7 1/4"
4"
3"
3/8"
3/4" DIA. HEX. HEAD GALV. BOLTS (TYP.)
5/8" DIA. x 2" HEX HEAD GALV. BOLT, NUT & WASHERS. 3/4" x 2 1/2" SLOT IN SPECIAL END SHOE
1 1/2"
3"
3"
2 1/2"
4"
1'-0"
10 3/4"
7 1/4"
BRACKET – 12GA. GALV. STEEL PLATE (1'-3 1/2" VERT.)
SPECIAL END SHOE

SPECIAL END SHOE
SCALE: 1 1/2" = 1'–0"

NOTES
1. THREADED CONCRETE INSERTS ARE BRIDGE ITEMS. SPECIAL END SHOE, BRACKET, BOLTS, NUTS AND WASHERS ARE HIGHWAY ITEMS.
2. THREADED CONCRETE INSERTS FOR H.S. BOLTS SHALL BE CAST IN PLACE AND SHALL BE PREQUALIFIED AS CAPABLE OF DEVELOPING 11,000 POUNDS OF SHEAR IN THE BOLT. THE TEST SHALL BE CERTIFIED BY A TESTING AGENCY ACCEPTABLE TO THE M.H.D.
3. OMIT GUARD RAIL AND INSERTS AT SOUTHEAST ENDPOST.

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C:\DWG\SWS12 5-1-95 11:51:00 pm EST